

## ABSTRACT OF DISCLOSURE

A thin-film bulk acoustic oscillator comprises: a base; a barrier layer disposed on the base; a lower electrode disposed on the barrier layer; a piezoelectric thin film disposed on the lower electrode; and an upper electrode  
5 disposed on the piezoelectric thin film. The piezoelectric thin film includes a columnar crystal that extends in the direction intersecting the film surface. The top surface of the piezoelectric thin film is flattened by polishing so as to have a root mean square roughness of 2 nm or smaller.